

Amendment to the Claims:

The claims under examination in this application, including their current status and changes made in this paper, are respectfully presented.

1 (currently amended). A wireless communication receiving apparatus, comprising:

an antenna for receiving via first and second wireless communication channels a composite communication symbol that represents first and second communication symbols which correspond to respective results of first and second coding operations performed by a transmitter apparatus on a bit stream and an interleaved version of the bit stream, respectively;

a probability generator coupled to said antenna and responsive to said composite communication symbol for generating, for each of said first and second communication symbols, a corresponding plurality of probabilities that the communication symbol has respective ones of a plurality of possible values of the communication symbol;

first and second SISO decoders respectively corresponding to said first and second coding operations, and each having a first input coupled to said probability generator for respectively receiving therefrom the pluralities of probabilities corresponding to said first and second communication symbols, respectively, the first SISO decoder having a second input coupled to a first output of the second SISO decoder, and the second SISO decoder having a second input coupled to a first output of the first SISO decoder; and

said probability generator operable for generating at least one of said pluralities of probabilities also in response to SISO information received by said probability generator from ~~at least one of~~ a second output of each of said SISO decoders.

2 (canceled).

3 (currently amended). The apparatus of Claim 2 1, wherein said probability generator is operable for generating said plurality of probabilities corresponding to said first communication symbol in response to SISO information received from the second output of said second SISO decoder, and wherein said probability generator is operable for generating said plurality of

probabilities corresponding to said second communication symbol in response to SISO information received from the second output of said first SISO decoder.

4 (original). The apparatus of Claim 3, wherein said SISO information from said second SISO decoder includes a further plurality of probabilities that said second communication symbol has respective ones of said plurality of possible values of said second communication symbol, and wherein said SISO information from said first SISO decoder includes a further plurality of probabilities that said first communication symbol has respective ones of said plurality of possible values of said first communication symbol.

5 (currently amended). The apparatus of Claim 4, wherein said plurality of probabilities corresponding to said first communication symbol is received at an *a priori* output probability input terminal of said first SISO decoder, and said plurality of probabilities corresponding to said second communication symbol is received at an *a priori* output probability input terminal of said second SISO decoder.

6 (original). The apparatus of Claim 5, wherein said further pluralities of probabilities are pluralities of *a posteriori* output probabilities respectively produced by said first and second SISO decoders.

7 (original). The apparatus of Claim 4, wherein said further pluralities of probabilities are pluralities of *a posteriori* output probabilities respectively produced by said first and second SISO decoders.

8 (original). The apparatus of Claim 1, wherein said at least one plurality of probabilities corresponds to said first communication symbol and said at least one SISO decoder is said second SISO decoder.

9 (original). The apparatus of Claim 8, wherein said SISO information received from said second SISO decoder includes a further plurality of probabilities that said second communication symbol has respective ones of said plurality of possible values of said second communication symbol.

10 (original). The apparatus of Claim 9, wherein said further plurality of probabilities includes *a posteriori* probabilities produced by said second SISO decoder.

11 (currently amended). ~~The~~ A wireless communication receiving apparatus, comprising:
~~of Claim 1,~~

an antenna for receiving via first and second wireless communication channels a composite communication symbol that represents first and second communication symbols which correspond to respective results of first and second coding operations performed by a transmitter apparatus on a bit stream and an interleaved version of the bit stream, respectively;

a probability generator coupled to said antenna and responsive to said composite communication symbol for generating, for each of said first and second communication symbols, a corresponding plurality of probabilities that the communication symbol has respective ones of a plurality of possible values of the communication symbol;

first and second SISO decoders respectively corresponding to said first and second coding operations and coupled to said probability generator for respectively receiving therefrom the pluralities of probabilities corresponding to said first and second communication symbols; and

said probability generator operable for generating at least one of said pluralities of probabilities also in response to SISO information received by said probability generator from at least one of said SISO decoders;

wherein an *a posteriori* input probability output terminal of at least one of said SISO decoders is coupled via one of an interleaver and a de-interleaver to an *a priori* input probability input terminal of the other of said SISO decoders.

12 (currently amended). The apparatus of Claim 11, wherein an *a posteriori* input probability output terminal of the other of said SISO decoders is coupled via one of an interleaver and a de-interleaver to an *a priori* input probability input terminal of said at least one SISO decoder.

13 (original). The apparatus of Claim 1, including one of an interleaver and a de-interleaver connected between one of said SISO decoders and said probability generator.

14 (original). The apparatus of Claim 13, including one of an interleaver and a de-interleaver connected between said probability generator and the other of said SISO decoders.

15 (original). The apparatus of Claim 14, including an interleaver connected between said one SISO decoder and said probability generator and a de-interleaver connected between said one SISO decoder and said probability generator.

16 (original). The apparatus of Claim 15, including an interleaver connected between the other of said SISO decoders and said probability generator and a de-interleaver connected between the other of said SISO decoders and said probability generator.

17 (currently amended). The apparatus of Claim 16, wherein said de-interleaver coupled between said probability generator and said one SISO decoder is connected to an *a priori* output probability input terminal of said one SISO decoder and said de-interleaver coupled between said probability generator and the other of said SISO decoders is connected to an *a priori* output probability input terminal of the other of said SISO decoders, and wherein said interleaver coupled between said one SISO decoder and said probability generator is connected to an *a posteriori* output probability output terminal of said one SISO decoder and said interleaver coupled between the other of said SISO decoders and said probability generator is connected to an *a posteriori* output probability output terminal of the other of said SISO decoders.

18 (currently amended). A method of wireless communication, comprising:
receiving via first and second wireless communication channels a composite communication symbol that represents first and second communication symbols which correspond to respective results of first and second coding operations performed by a transmitter apparatus on a bit stream and an interleaved version of the bit stream, respectively;

for each of said first and second communication symbols, and responsive to the composite communication symbol, generating a corresponding plurality of probabilities that the communication symbol has respective ones of a plurality of possible values of the communication symbol;

applying to first and second SISO decoders, which SISO decoders respectively correspond to said first and second coding operations, the pluralities of probabilities that correspond to said first and second communication symbols, respectively;

wherein each of said SISO decoders produces *a posteriori* input probabilities;

and wherein said generating step ~~including~~ includes generating at least one of said pluralities of probabilities also in response to SISO information produced by at least one of the SISO decoders; and

forwarding said *a posteriori* input probabilities produced by said first and second SISO decoders to said second and first SISO decoders, respectively.

19 (currently amended). The method of Claim 18, wherein said ~~generating step includes generating each of said pluralities of probabilities in response to~~ SISO information comprises *a posteriori* input probabilities produced by a respective one of said SISO decoders.

20 (currently amended). The method of Claim 19, wherein said generating step includes generating said plurality of probabilities corresponding to said first communication symbol in response to ~~SISO information~~ *a posteriori* input probabilities produced by said second SISO decoder, and generating said plurality of probabilities corresponding to said second communication symbol in response to ~~SISO information~~ *a posteriori* input probabilities produced by said first SISO decoder.

21 (currently amended). The method of Claim 20, including said second SISO decoder producing its associated SISO information as a further plurality of probabilities that said second communication symbol has respective ones of said plurality of possible values of said second communication symbol, and said first SISO decoder producing its associated SISO information as a further plurality of probabilities that said first communication symbol has respective ones of said plurality of possible values of said first communication symbol.

22 (original). The method of Claim 21, including providing said plurality of probabilities corresponding to said first communication symbol as *a priori* output probabilities for use by the

first SISO decoder, and providing said plurality of probabilities corresponding to said second communication symbol as *a priori* output probabilities for use by the second SISO decoder.

23 (original). The method of Claim 21, including the second SISO decoder producing its associated further plurality of probabilities as a plurality of *a posteriori* output probabilities, and the first SISO decoder producing its associated further plurality of probabilities as a plurality of *a posteriori* output probabilities.

24 (original). The method of Claim 18, wherein said at least one plurality of probabilities corresponds to said first communication symbol and said at least one SISO decoder is said second SISO decoder.

25 (original). The method of Claim 24, including said second SISO decoder producing its associated SISO information as a further plurality of probabilities that said second communication symbol has respective ones of said plurality of possible values of said second communication symbol.

26 (original). The method of Claim 25, including said second SISO decoder producing said further plurality of probabilities as *a posteriori* output probabilities.

27 (currently amended). A The method of Claim 18, including wireless communication, comprising:

receiving via first and second wireless communication channels a composite communication symbol that represents first and second communication symbols which correspond to respective results of first and second coding operations performed by a transmitter apparatus on a bit stream and an interleaved version of the bit stream, respectively;

for each of said first and second communication symbols, and responsive to the composite communication symbol, generating a corresponding plurality of probabilities that the communication symbol has respective ones of a plurality of possible values of the communication symbol;

applying to first and second SISO decoders, which SISO decoders respectively correspond to said first and second coding operations, the pluralities of probabilities that

correspond to said first and second communication symbols, respectively, one of said SISO decoders producing a *posteriori* input probabilities;

said generating step including generating at least one of said pluralities of probabilities also in response to SISO information produced by at least one of the SISO decoders; and

performing one of interleaving and de-interleaving on said *a posteriori* input probabilities produced by said one SISO decoder to provide *a priori* input probabilities for input to the other of said SISO decoders.

28 (original). The method of Claim 27, including the other of said SISO decoders producing *a posteriori* input probabilities, and performing one of interleaving and de-interleaving on said last-mentioned *a posteriori* input probabilities to provide *a priori* input probabilities for input to said one SISO decoder.